DOCUMENT RESUME

ED 213 661 SP 019 494

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| AUTHOR | Mulhern, John D.; Morris, Robert C. |
| TITLE | A Field Practicum for Teachers of Gifted Children: The South Carolina Experience. Current Issues. |
| INSTITUTION | ERIC Clearinghouse on Teacher Education, Washington, D.C. |
| SPONS AGENCY | National Inst. of Education (ED), Washington, D.C. |
| PUB DATE | Feb 82 |
| CONTRACT | 400-78-0017 |
| NOTE | 49p. |
| AVAILABLE FROM | ERIC Clearinghouse on Teacher Education, One Dupont Circle, Suite 610, Washington, DC 20036 ($3.50). |
| EDRS PRICE | MF01/PC02 Plus Postage. |
| DESCRIPTORS | Acceleration; College School Cooperation; Elementary Secondary Education; Enrichment Activities; *Field Experience Programs; *Gifted; Grade 7; Inservice Teacher Education; Lesson Plans; Master Teachers; *Practicums; School Districts; Screening Tests; *Special Education; *Summer Programs; Teacher Characteristics; *Teacher Education Programs; Teacher Qualifications |
| IDENTIFIERS | *University of South Carolina |

ABSTRACT

A collaborative program between the University of South Carolina College of Education and Lexington County (South Carolina) School District Five provided gifted and talented students with a summer school session featuring acceleration and enrichment. Accompanying the program were graduate-level courses and practica for prospective teachers of gifted children and coordinators of programs for the gifted. The 1981 summer program consisted of six dimensions: (1) thinking skills and creative arts for kindergarten through second grade students; (2) study in graphics, dramatics, computers, photography, and the performing arts for fourth through eighth grade students; (3) field experiences for fourth through seventh grade students; (4) seventh grade seminars; (5) drama workshops for eighth through twelfth grade students; and (6) gifted education courses for teachers. A discussion of the fourth dimension of the summer program, the seventh grade seminars, describes criteria for identifying gifted students, and the general format of the program. The teacher practicum (sixth dimension) consisted of a series of formal and informal experiences that allowed the teachers to design and execute specific learning activities for gifted students. A profile of a gifted teacher is outlined and offers considerations of the personal and professional attributes that are necessary for a teacher of gifted children. A comparison is made of this program and similar programs at Purdue University, the University of South Florida, and three universities in England. Lesson plans for four curricular areas covered in the fourth dimension of the summer program are appended. (JD)

# A Field Practicum for Teachers of Gifted Children

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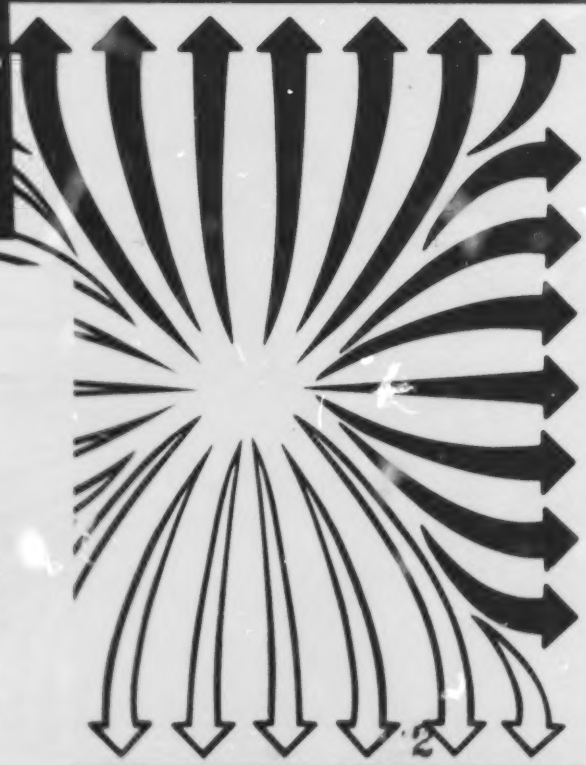

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# A FIELD PRACTICUM FOR TEACHERS OF GIFTED CHILDREN: THE SOUTH CAROLINA EXPERIENCE

by

John D. Mulhern and Robert C. Morris

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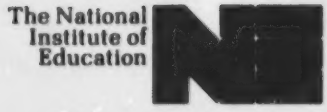
One Dupont Circle, Suite 610, Washington, D.C. 20036

February 1982 Clearinghouse No. SP 019 494




The ERIC Clearinghouse on Teacher Education is funded by the National Institute of Education. The material in this publication was prepared pursuant to contract no. 400-78-0017 with the National Institute of Education, U.S. Department of Education. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgments in professional and technical matters. Prior to publication, the manuscript was submitted to external referees for critical review and determination of professional competence. This publication has met such standards. However, points of view or opinions do not necessarily represent the official views or opinions of the Clearinghouse or the National Institute of Education.

Printed in the United States of America.

Library of Congress Catalog Card No.: 82-70795

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## FOREWORD

Teaching gifted and talented children can be a stimulating, fascinating experience for the teacher who is prepared and capable of working with this exceptional group. For one who is unprepared and incapable, these students can be constant sources of frustration and disruption.

In Summer 1982 for the third year, the University of South Carolina College of Education will offer a program for teachers who work with gifted and talented students in regular classes. Part of the program is a five-week practicum in which the teachers observe and assist master teachers in providing an intensive academic program for gifted and talented children. The program is jointly sponsored and coordinated by the university and a local school district. The following pages detail the program and the collaborative arrangement that have evolved.

The Clearinghouse acknowledges with appreciation this contribution to the professional literature about teacher education. The authors are Dr. John D. Mulhern, dean, and Dr. Robert C. Morris, associate professor, College of Education, University of South Carolina, Columbia. Acknowledgments also go to the content reviewers, whose comments and recommendations assisted the authors and the editor in producing this monograph.

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SHARON GIVENS
Editor, ERIC Clearinghouse
on Teacher Education

## PREFACE

> Truly sound teacher education curricula are those which consciously work toward making connections...connecting practice to theory, curricula to life, courses to clinical work; linking teachers and future teachers to each other, to the college faculty, to youngsters and other school personnel, and to the public; and affiliating education faculty with other faculties in the college and with one another.
>
> --Elizabeth Hunter (1980)

Hunter's words accurately describe an innovative program now in progress at the College of Education, University of South Carolina (U.S.C.). This program (a) offers gifted children an opportunity for enrichment and acceleration, both of which help make their school lives more interesting; (b) provides a controlled practicum setting for graduate students learning about gifted children; and (c) does both a and b in cooperation with a local school district.

This monograph describes the cooperative program of the College of Education and Lexington County (S.C.) School District Five. Specifically, it examines the rationale for practica that are tailored to teachers of gifted children as well as those skills needed for instructing exceptional children. Finally, the authors have searched the ERIC data bases for descriptions of practica at other schools to compare those programs with

the University of South Carolina's program.

This analysis of a successful program is intended to show how teacher educators are working out the problems of providing quality practical experiences for the continuing education of teachers of gifted children.

## A Collaborative Program for Gifted and Talented Students

During the late 1970s, the growing national concern among parents and educators for gifted students was the impetus for special educational programs in metropolitan Columbia, South Carolina. During 1979 and '80, area schools significantly increased their activities for gifted and talented students. In addition to development grants provided by the state Department of Education for district programs, several conferences about gifted students were sponsored by the University of South Carolina and local school districts. New programs, including early use of the Scholastic Aptitude Tests (S.A.T.) via the Duke University Talent Identification program to identify gifted children, were proposed in several districts. Similarly, ongoing programs were modified to reflect broader educational goals.

During the summer of 1980, the university increased its efforts to address local needs. First, the U.S.C. College of General Studies initiated a summer residential program for gifted children in grades four through eight. The program offered three two-week sessions modeled after a successful program at Appalachian State University in North Carolina. Second, in addition to its regular summer offerings, the U.S.C. College of Education sponsored two courses on educating the gifted with a local school district, Richland County School District One. Third, the college entered into a partnership with Lexington County School District Five to develop a practical course for teachers who work with gifted pupils in regular elementary and middle grade classrooms.

The program with Lexington School District Five,

which this paper describes, continues to evolve as both parties grow in understanding each other's expectations. The program captures the spirit of Elizabeth Hunter's concern that "teacher education curricula...work toward making connections." That is, classroom activities are based on sound educational theory. The following review of the 1980 and the '81 summer programs and of the proposal for 1982 describes the evolution of this collaboration.

## Summer Program, 1980

Lexington County School District Five's master plan called for each classroom teacher to be able to teach gifted children with the assistance of resource teachers, outside mentors, and supplemental programs. A summer enrichment program evolved from two distinct but related educational needs: the special needs of gifted students for experiences beyond the normal school year, and the district's need to expand its pool of teachers trained to work with gifted students. Early in planning the summer enrichment program, the district coordinator of gifted and talented programs requested that the university offer a training program for teachers.

A series of three one-week institutes for gifted students from grades four through six were initiated as classroom learning laboratories. The three "master" teachers employed to conduct the institutes agreed to teach the children during the morning sessions and to spend the afternoon sessions instructing prospective teachers of the gifted. The teachers-in-training were required to observe the master teachers during the morning sessions and to assume limited instructional duties on a one-to-one basis with a gifted child under the supervision of the master teacher and the course instructor.

From these institutes, 26 teachers earned graduate credit in "The Nature and Needs of Gifted Children." Unlike a traditional graduate class, this class emphasized the practical application of educational theory to children in a real classroom.

Summer Program, 1981

The 1981 summer program, like its '80 predecessor, had the same goals but instruction was expanded. The university sponsored a segment of the instructional program for gifted children and also expanded the graduate course offerings to include three three-semester-hour courses and one six-semester-hour course. Because of the collaborative arrangement, district teachers enrolled in the courses paid lower tuition and the district provided instructional space for university use at no cost. For the program, the district coordinator of gifted and talented programs and the dean of the college of education assumed joint responsibility and shared major decisions regarding program management.

The program consisted of six areas, referred to as dimensions one through six, and accommodated 800 participating children who had been identified as gifted. The six dimensions were as follows:

Dimension One: Thinking Skills, Creative Arts for Kindergarten - Grade 2. This two-week program concentrated on developing critical thinking, and instruction was founded on creative expression through dance, drama, art, and music. Students attended for one or two weeks.

Dimension Two: From Calligraphy to Computers. This three-week course for students in grades four through eight offered study in graphics, dramatics, computers, photography, and the performing arts. Students chose three of these areas and spent one hour per day in each area. They attended for one, two, or three weeks.

Dimension Three: Field Experiences. This series of three short field experiences for children in grades four through seven were as follows:

a. "Adventures in the Salt Marsh." A one-week program that included study of marine biology during a field trip to the Shidaway Institute of Oceanography in Georgia.

b. "Of Mountains and Men." A three-day program of mountain field study at Tumbling Waters Camp, Georgia, which included mountain hikes, oral history, and the study of wild edibles.
c. "Footsteps in a New Era: From Jamestown to Apollo." A six-day program about Colonial Williamsburg including its archaeology, architecture, history, and customs. Students spent three days in Williamsburg, Virginia.

Dimension Four: Seventh Grade Seminars. This five-week, academic program extended the school's curriculum into new areas for rising eighth graders. It included study in computer programming, aerodynamics and rocketry, creative writing, and independent study. This program, described in detail later, is the only dimension for which special criteria were used to select participants.

Dimension Five: Workshop in Drama for Grades 8-12. This one-week program consisted of two workshops--mime and oral expression--both of which emphasized the selection of materials and an original public performance.

Dimension Six: Gifted Education Courses for Teachers. This series of four graduate courses for teachers consisted of an introductory course in gifted and talented education, an independent study, and two practicum courses.

Although the program was a collaborative undertaking, each sponsor assumed responsibilities for different phases. The district sponsored and staffed dimensions one, two, three, and five, and the university sponsored and staffed dimensions four and six. Enrollment in the district-sponsored programs was limited to district students, but enrollment in the university-sponsored programs did not include that restriction.

A small fee was charged for each of the different programs to cover actual program costs, except in dimension four where a $50 fee covered only consumable materials and field trips. The university assumed

instructional costs for dimension four because it constituted the classroom settings for the graduate practica.

## Summer Program, 1982

The proposed summer program will reflect the wide variety of educational experiences offered during 1981, as well as attempt to meet the goals of the district's master plan for the education of gifted children. Dimensions four and six, sponsored by the university, will be part of the 1982 program, but dimension four will undergo extensive revision.

The 1982 dimension four program will offer intensive academic classes in mathematics, astrophysics, world affairs, beginning Latin, beginning French, or a composite class that includes writing, symbolic logic, and philosophy. These electives will incorporate the instructional core, which again will include computer programming, the scientific method, writing skills, and research methods and skills.

## Summary

In designing each year's program, questions about the preparation of teachers of the gifted received attention equal to that devoted to questions about the education of gifted students. However, the issues related to the education of gifted students had to be addressed first if a quality classroom practicum experience was to be an integral part of the teacher preparation program. It became necessary for the university educators to participate in conceiving an educational program for students in what amounted to a major re-ordering of U.S.C. College of Education priorities. Only then could the staff design a teacher preparation program that would ensure the training of teachers who know and understand quality educational programs as well as pedagogical strategies. This involvement has truly helped to put the university into the process of educating youngsters.

## Dimension Four: The Students

The first problem faced by the staff of the seventh grade seminar program was the identification and selection of gifted students. Although the staff was granted latitude in determining the selection criteria, the educational need for an academically challenging program for rising eighth grade students was a key factor in staff deliberations.

The issue of "student performance" versus "student potential" continues to create differing views about giftedness (Baer 1980). Historically, I.Q. or potential for success has been the major criterion for identifying gifted students. Traditionally, an I.Q. (measured on Stanford-Binet or Weschler) of 125 or above has been accepted as the minimum criterion for "giftedness." Although Stanley (1980) reported that the I.Q. is probably the best single indication of a youth's intellectual ability, he cautioned against heavy reliance on a single measure or score.

During the post-Sputnik era, many school districts expanded the definition of "gifted" to include teacher recommendations and classroom performance as measured by achievement test results. Typical of programs during that era was one conducted by the Milwaukee Public Schools (1958). Students for this program were identified on the basis of scores from a group-administered I.Q. test, performance levels on a standardized test of basic skills, and teacher recommendations. Final selections for the special classes were confirmed on the basis of individually administered I.Q. tests; students who scored 125 or above on the Weschler and 130 or above on the Stanford-Binet were selected.

The current definition of "gifted" encompasses a broad base of information about the intellectual abilities of gifted children and the characteristics of their performance whether on a stage, in a classroom, in a laboratory, or in a studio (Marland 1972). Le Mahieu (1980) best synthesized the definition as "those (children) identified by professionally qualified persons who, by virtue of outstanding abilities, are capable of

high performance." This category includes:

> those (children) with demonstrated achievement and/or potential ability in any of the following areas singly or in combination:
> 1. general intellectual ability
> 2. specific academic aptitude
> 3. creative or productive thinking
> 4. leadership ability
> 5. visual or performing arts
> (Le Manieu 1980, p. 261)

Although this definition takes into account various characteristics of gifted students, it contributed little to resolving the problem faced by the U.S.C.-Lexington program staff.

The works of other authors also were interesting but these, too, tended to expand the definition rather than restrict it. For example, some of the early work of Torrance (1965) found gifted youths to be more preservant, self-directed, and independent. A similar study examined five factors that discriminate between the preferred learning styles of "gifted" versus "average" junior high school students (Griggs and Price 1980); gifted youth were found to be more persistent, more tolerant of sound, and preferred learning alone to a greater extent than average youth. (Also see Dunn and Price 1980.) Similarly, the studies on creativity, especially those of Guilford (1968) and Torrance (1965, 1977), were interesting but did not contribute significantly to the identification of students for the U.S.C.-Lexington program.

To resolve the issues of selection on the basis of "potential" versus "performance" or on the wide variety of "observable" personal and work traits, the staff turned to the Duke University Talent Identification Program (TIP). Sixth grade students who scored in the 97th percentile or higher on the Comprehensive Test of Basic Skills (CTBS) were invited to participate in TIP. During the seventh grade, selected students took the S.A.T. as part of the Duke program. Because of Duke's acceptance of the CTBS cut-off score for seventh grade students to take the S.A.T., the U.S.C.-Lexington staff recommended that

admission to the Seventh Grade Seminar Program be based on same criterion.

Later, at the request of the district's coordinator of the gifted and talented program and two other educators in similar roles in the Columbia area, the selection criterion was modified to include--

1. students other than rising eighth graders recommended by district directors of gifted and talented programs;
2. rising eighth grade students who scored below the 97th percentile but whose classroom performance clearly identified them as advanced students.

Of the 37 students enrolled in the 1981 summer program, 32 met the original selection criteria, and five students entered under the modified criteria.

Plans for 1982 incorporate some minor changes in the selection criteria as a result of an increased number of students who want to enroll in the program. These changes are as follows:

1. Restoration of the restriction that only rising eighth graders be enrolled in the program.
2. Restoration of the requirement that student performance on the CTBS be at the 97th percentile or higher.
3. A score of 475 or above on the nonverbal section of the S.A.T. to be eligible for the mathematics option.

Although the use of these selection criteria will eliminate some students who might benefit from the educational program, the benefits for the teacher preparation programs clearly outweigh the negative aspects. First, observation of students selected under the more stringent criteria will aid the the prospective teacher in recognizing the achievement potential of truly gifted students. Second, working with these students will aid the prospective teacher in developing a classroom academic program that will challenge the gifted student. It is for these reasons, not for the education of the youths alone, that the university has committed its resources and effort.

## Dimension Four: The Program

> Although increasingly there is much drum beating for the gifted by various associations including parent groups, a great deal of it seems poorly focused. Avoidance of subject matter by most of them especially dooms their efforts to be ineffectual. They place nearly all of their gold on the irrelevant-enrichment bandwagon; in my opinion, far too little of it goes into subject matter emphasis and acceleration.
>
> --Julian C. Stanley (1980)

Programs for gifted and talented students are often one-shot experiences rather than a series of experiences carefully designed to enrich and deepen students' knowledge. Programs often rely on instructional modules that may or may not meet students' educational needs. These modules may do little to help gifted students diversify their interests, develop depth of knowledge in a particular field, or refine the research skills needed in that field.

Decisions about academic instruction in the seventh grade seminar were strongly influenced by a variety of authorities on the education of gifted students. Among them, Gallagher (1980) expressed concern that educational programs for gifted children are often too primitive and simple conceptually. He recommended that students receive an education in which ideas and complex situations can be mastered. Hoback and Perry (1980) cited the need to establish high achievement expectations for gifted students and their particular need to develop the skills of self-discipline, self-motivation, self-teaching, goal setting, and problem solving. Similarly, Le Mahieu (1980) recommended programs that allow gifted students to feel comfortable with ambiguity, incompleteness, and the tentativeness of knowledge; to develop imagery; to separate promising from unpromising avenues; and to

communicate adequately. Renzulli's Triad Model (Renzulli 1976) and the application of this model to the classroom (Feldhusen and Koloff 1979) contributed greatly to the development of the creative writing component of the U.S.C.-Lexington program. In a final note, the U.S.C.-Lexington staff spent much time studying the work of Stanley and his associates at Johns Hopkins University (Stanley 1976; Stanley, Keating, and Fox 1974). Although the U.S.C.-Lexington program was a combination of enrichment and acceleration during 1981, the staff concluded that rapid acceleration through fast-track instruction would be used during the 1982 summer program.

During a preliminary planning session, the four master teachers and two co-directors agreed on the following guidelines for the 1981 seventh grade seminar:

1. The program should consist of an academic core to be taken by all of the students.
2. The program should complement rather than duplicate the regular class program or the special class program for gifted students.
3. Each teacher would create an environment where students would assume responsibility for learning and excellence.

The format for the seventh grade seminar program consisted of instruction in four curricular areas: creative writing, computer science, aerodynamics and rocketry, and an independent study. Ten 90 minute classes were scheduled for each of the four subjects over a four-day-a-week, five-week session. Classes were held in instructional pods in a district middle school. One of the class areas was equipped with 12 microcomputer stations.

Each teacher was responsible for developing the instructional units, and team planning sessions were held to share information and coordinate the planning effort. In each subject, specific minimal goals were established for all students, while individual attainment goals were established through conferences with each student. Although a permissive atmosphere prevailed, students were directed into self-achieving behaviors. Descriptions of the lesson plans for each of the four subjects are presented in the Appendix.

The selection of the instructional staff for the program received the careful attention of both the university and the district. Although staff selection was the responsibility of the university, each prospective staff member was interviewed by both the university's dean of education and the district's coordinator of gifted and talented programs, and selection was a mutual decision.

The four master teachers had experience in teaching gifted and talented students, distinguished educational backgrounds in their subjects, distinctive reputations as excellent teachers, and prior experience in training teachers.

The university co-director also served as the practicum supervisor and the instructional team leader. As such, he assumed responsibility for the overall quality of the instructional program for the gifted students as well as the development and supervision of the practicum.

## Dimension Six:
## Rationale for a Collaborative Practicum

Before the formal development of pedagogy and the establishment of teacher training colleges, teachers received a general education with an academic specialization, and they learned how to teach on the job. With the development of teacher training colleges in the early 1800s came the establishment of elementary and secondary "training schools" on the college campus. These offered ready sites for prospective teachers to practice under the direct supervision of college instructors.

Although the training school is largely a thing of the past, the practicum remains an integral part of teacher education programs. Both regional and national accreditation organizations, such as the National Council for Accreditation of Teacher Education (NCATE 1977), mandate field and clinical laboratory experiences for undergraduate and graduate training programs. In most cases, this phase of a teacher education program is conducted in public schools with limited university involvement in a cooperating school's educational program.

Also, when formal, collaborative agreements between colleges of education and public schools exist, they usually cover only the student teaching program. Arrangements for pre-student teaching practica are generally informal, often made between a professor and a classroom teacher or between the college's field experiences supervisor and the local school district.

Some educators are questioning the proposition that all field experience is necessarily "good." In particular, Zeichner (1980) called for a reassessment of the practical school experiences considered necessary for the development of better teachers. On the basis of an extensive review of the literature, he stated:

> What students appear to learn during field-based experiences is often in conflict with the expressed intentions of those in both the schools and universities and indicates that these experiences are often miseducative rather than helpful. (p. 51)

In a similar vein, the supremacy of the NCATE standards also has been challenged. Tom (1980) analyzed the standards and concluded that little if any correlation exists between the standards and the actual quality of teacher education programs.

These criticisms seem to constitute more of a challenge to the lack of direct university involvement in establishing and monitoring the quality of the practicum than to the practicum itself. Inherent in the criticism is the idea that a practicum in a classroom setting with a deficient educational program or an inadequate teacher will not provide a proper environment for a prospective teacher to develop good teaching skills or to gain insight into a qualitative educational program.

The need for field practicum sites assumes far greater importance as society and the teaching responsibilities it imposes become more complex, and the need for practicum sites of the highest quality is especially apparent for prospective teachers of gifted and talented students. However, regular school programs often lack the curriculum and the instructional depth that

gifted children need. Similarly, teachers often lack special training for working with gifted and talented students. Hence, although practica are mandatory, the quality of available sites is often questionable, especially for prospective teachers of gifted children.

Collaborative programs between colleges of education and school districts can offer opportunities to link theory and practice, universities and public schools, and professors of education and teachers (Lang 1980). To assist universities and school districts in developing collaborative efforts, Wiles and Branch (1979) proposed four models. Their "Model B" showed that both the public school system and the university system can share responsibility for preservice and inservice education of classroom teachers, while other areas of responsibility, such as curricula and teacher evaluation, remain separate and distinct.

Other collaborative models between teacher education and the public schools have been developed in the federal Teacher Corps program. One project that was reported to be successful used a committee model (Quinn 1976).

Regardless of which model is used, universities and school districts should note that collaborative efforts require adequate funding if they are to succeed.

For field practica, formal collaborative arrangements between a university and a public school can have several advantages for training teachers.

1. The college can select the cooperating classroom teachers.
2. The college can design specific experiences for each phase of the practica.
3. The college can arrange the field experience in a developmental sequence.
4. The college can establish the basis for effective evaluation of the teacher candidate's performance.

For the U.S.C. College of Education, the challenges of using a collaborative program model to develop a practicum of high quality for prospective teachers of gifted children has led to many new ways of doing things. The practicum continues to evolve, but the structures that will enable it to flourish are firmly in place.

Dimension Six: Overview of the Program

After an informal analysis of the 1980 summer program, which had been conducted by Lexington County School District Five, the district coordinator of gifted and talented programs and the university dean of education identified the need for a comprehensive academic practicum of four to six weeks in length. The 1980 program contained numerous opportunities for the graduate students, who were experienced teachers, to observe, but no time to engage in classroom activities.

The 1981 program, as proposed, would have allowed the graduate students enrolled in the introductory course on the nature and needs of gifted students to observe the master teachers during morning sessions and to attend lectures and discussions during the afternoon. However, this structure still did not fulfill the expressed needs of the graduate students. Because they were experienced teachers returning to graduate school, they wanted to expand their repertoire of skills and techniques by experiencing actual classroom situations and activities. Consequently, the district coordinator and the dean added a second practicum, whose nature was similar to the student-teaching experience that prospective teachers have before initial certification.

The practicum became an adjunct of the dimension four seventh grade seminars for gifted students. For five weeks the graduate students worked directly with the adolescents, but under the supervision of the master teachers who were the key to the experience. Their development of materials, techniques, and teaching strategies as well as the kind of supervision they maintained throughout the course were what made the practicum a success.

The instructional format for the practicum consisted of a series of formal and informal experiences that allowed the graduate students to design and execute specific learning activities for one or more of the gifted students. The course also allowed for participation in student goal-setting activities, observation of teaching and counseling techniques, discussions about specific learning needs and performance abilities of students, and

execution of an independent project. All work in the practicum was carried out under the general supervision of a practicum supervisor and the four master teachers. Each of the five was accessible to the graduate students for five hours per day Mondays through Thursdays, and special conferences were held on Fridays.

Although practicum settings are quite common in the preparation programs for teachers and other human services professionals, certain features of the contractual agreement between the university and the school district are unique. First, the university assumed all of the instructional costs of a program in a local school district. Although enrollment was not limited to children from the district, the location of the program in a district school rather than a geographically central location resulted in the vast majority of students coming from that district. Second, the district granted the university complete freedom to determine the make-up of the student body, the instructional staff, and the course sequence and content. The development of the total summer program was marked by cooperation among those involved in the process, as well as acceptance of those unique contributions each party could make toward the development of the program. This final point is the keystone in the development of this collaborative model.

## Dimension Six: Indentifying Practica Participants

No phase of an educational program is more crucial to its success than the identification and selection of its teachers. For gifted and talented programs, that means teachers should exhibit above average knowledge, skills, and attitudes.

Although special schools traditionally have maintained selective criteria for hiring their teachers, as Brandwein (1955) documented, similar documentation of the use of selective criteria for entrance into teacher preparation programs does not exist. In many teacher education programs, candidates decide on the basis of their interests in a subject or in working with children

to enroll in a program for the gifted and work toward certification. Active recruitment of desirable candidates usually does not take place.

The teacher of gifted and talented students most often is described as a teacher with special personality traits. In 1960, Sumption and Luecking advocated selecting teachers for special classes and programs on the basis of superior intelligence, interest in young people, diversified personal interests, strong physical and emotional health, and other characteristics that set these teachers apart from the mainstream. Hoback and Perry (1980) identified as desirable attributes flexibility and tolerance for the unexpected, a secure and unthreatened personality, intellectual acumen, mature judgment and leadership in handling groups, and a gift for creativity and imagination. Leibowitz cited the essential need for teachers of gifted children to be "facilitators of instruction," or someone who will aid and assist students in arriving at logical answers rather than someone who has all the answers (Brandt 1980).

The current wave of interest in gifted education not only has renewed concern about the need for skillful teachers to work with gifted and talented students (Miller and Miller 1980; Nufrio 1980), but also has brought forth one promising solution. Stanley (1980) examined the futility of attempts to train teachers to work with gifted children when the teacher did not have the abilities to meet the needs of the students. He advocated that the schools use coordinators for gifted programs. The coordinator, according to his proposal, analyzes the students' educational needs and, using resources from the school and the community, arranges instruction to meet the special needs of each gifted and talented student. Although individualized learning is a valid approach both to instruction and to deployment of resources within a school district, such learning plans have had limited use in the schools. The U.S.C.-Lexington co-directors have adopted Stanley's idea and have designed a graduate program to train both classroom teachers and coordinators.

Sisk (1979) noted that the preparation needs of teachers of the gifted often are overlooked or ill-conceived; she pointed out the need for a well-rounded

liberal arts program for these prospective teachers. However, in practice her programs for training teachers of the gifted appear to rely heavily on professional methods courses, not liberal arts.

One area that is lacking in the literature is the teacher's command of subject knowledge and general information. Nowhere does one find intellectual giftedness stated as an entrance requirement for a teacher of gifted and talented children; the reader is left to surmise this. For example, one may hypothesize from Stanley's work, which places heavy emphasis on fast-track teaching and acceleration, that the teacher must be gifted or at least have a strong command of the subject, but Stanley does not state this.

The co-directors of the U.S.C.-Lexington program viewed the self-selection process and the shortcomings of selection criteria as inherently poor for a program that purports to train teachers to work with gifted children. From their experiences in working with gifted students and their teachers and from their analysis of the literature, they have developed a profile of the personal and professional characteristics that such teachers should possess. The profile, presented in table 1, is an outgrowth of the 1981 summer session and will be used for the first time in the 1982 summer graduate program to identify and select participants. Each candidate for entry into the practicum will be required to show evidence of meeting all the personal characteristics and three of the professional characteristics.

The profile is not intended to be a comprehensive list of every skill that a professional educator needs to conduct a class or program for gifted children. It is a synthesis of ideas and represents the kind of professional leader needed by one school district as it further develops its programs for gifted children.

TABLE 1

PROFILE OF A GIFTED TEACHER

I. Personal Characteristics. A teacher must show evidence of successful achievement(s) in each area before acceptance into the practicum.

a. Intellectual Achievement: is knowledgeable about a wide range of subjects and topics
b. Interpersonal Skills: is able to establish successful comfortable working relationships with adults and students
c. Personal Success: has achieved success as a teacher or as a professional in some other field
d. Secure Personality: is at ease in most settings including those that are new and/or unknown
e. Intellectual Curiosity: is constantly seeking new solutions through continued learning
f. Organization: has an organized personal life and maintains control over it
g. Leadership Ability: has demonstrated skills in leading people, especially young people, to successful execution of a major undertaking

II. Professional Characteristics. The teacher is to demonstrate successful attainment in each area either before or during the practicum.

a. Subject Knowledge[1]: extensive command of one subject and familiarity with several others
b. Information Skills[2]: ability to organize information into units for teaching gifted students
c. Classroom Teaching Skills[2]: ability to relate to gifted students within a classroom and to create an environment in which learning takes place
d. Diagnostic Skills[3]: ability to use diagnostic

tests and other tools to determine students' educational needs

e. Prescriptive Teaching Skills[3]: ability to design specific learning packages for students and to carry them out successfully
f. Program Development Skills[3]: ability to conceive a program for gifted students and to identify and organize the key elements related to its success
g. Program Leadership Skills[3]: ability to convince a wide variety of persons about the appropriateness of the program for the gifted

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1 Represents undergraduate and/or graduate level of study.
2 Represents a repertoire of teaching skills that are associated with the introductory course on the nature and needs of gifted students.
3 Represents skills directly associated with the advanced practicum

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## Dimension Six: Comparisons with Three Other Programs

The U.S.C.-Lexington collaborative program for training teachers and teaching gifted students continues to evolve to meet local needs. The 1982 program will reflect changes to meet shifting priorities of both partners. Although the program cannot be compared in toto to any other programs within the state or elsewhere, certain elements are similar.

This section looks briefly at three successful programs--Purdue University, the University of South Florida, and three universities in England--and serves to verify the success of the U.S.C. program. These comparisons are intended not to evaluate or judge, but to demonstrate the similarities and differences between this program and other successful programs.

The Purdue University program was first described by Feldhusen (1977, 1980) as providing graduate students a structured practicum with gifted students and providing gifted students a worthwhile educational experience. The practicum was a laboratory section of a graduate course and was conducted during both the regular school year and a summer session. During the school year, gifted students in groups of eight to twelve met with a practicum student for 1 1/2 to 2 hours per week. In one school these sessions were held during the day; they were scheduled after school in two other schools. In the summer session, the practicum students met with the gifted students during two afternoons per week.

The Purdue program's objectives were (a) to familiarize teachers and other graduate students with the characteristics of and research about giftedness, (b) to help them plan appropriate learning experiences for gifted students, and (c) to provide field experiences with gifted children. The graduate students had the option of working with gifted children in their classrooms during the year as an alternative to the practicum. During the course, the graduate students experienced a variety of educational stimuli including lectures, demonstrations, small group work on design problems, simulations, games, and individual work plans.

The Purdue program appears to have concentrated on the creative-thinking and problem-solving abilities of gifted students. In part, this was accomplished through the use of Renzulli's Triad Model (1976) and Feldhusen's work in collaboration with Treffinger (1977) in the design of learning programs. Several noteworthy aspects of the Purdue program include--

1. the development of a practicum setting in collaboration with local school districts;
2. a mandatory field experience whereby the graduate students planned specific learning episodes with gifted students;
3. a structured program that provided the graduate students with a wide range of experiences about gifted students.

One disadvantage was that the practicum is essentially an

unsupervised experience in which the graduate students taught the gifted children. Further, the practicum may have been conducted in the uncontrolled environment of the graduate students' classrooms.

Another program that successfully attains many goals similar to those at U.S.C. was conducted by the University of South Florida. This program, reported by Sisk (1979), used a practicum in which students developed their teaching skills under the supervision of an experienced teacher of the gifted. The field practicum was described as part of a comprehensive masters' degree program for training teachers of the gifted. The developmental model called for small group dynamics, apprentice-type field work, modeling, and community involvement as part of the overall development of teachers of the gifted. The apprenticeship involved approximately 400 gifted children, ages 4 to 14, in Saturday morning enrichment classes at the university. Sisk described the field experiences as follows:

> Each teacher trainee chooses two areas of interest and plans two ten-week, one-hour sessions for a small group of fifteen youngsters who are matched on mental age. Experienced teachers teach with an inexperienced teacher as an assistant or apprentice. They plan the classes and share responsibility of the class with the gifted children.
>
> Doctoral students in exceptional child education, with emphasis on gifted, act as facilitators or "trouble shooters" by helping to devise small group instruction, gather materials or suggest ways of relating to a difficult gifted child. As the assistant gains expertise and confidence, he or she moves to the teacher role and then works with an assistant. (1979, p. 8)

The program was modified during the summer sessions so that graduate students could enroll in three content courses ("Nature and Needs of the Gifted," "Educational Procedures for the Gifted," and "Creative Problem

Solving") during the morning. "Field Work with the Gifted" was offered as an option on Tuesday and Thursday afternoons.

Although South Florida's program is comprehensive and requires a developmental practicum, the practicum is campus-based and does not appear to be a collaborative effort with the local school district(s).

A third program that is relevant to the U.S.C. program grew out of a research and development project funded by the Universities of Nottingham, Leicester, and Exeter in England (Kerry 1979). The emphasis of this project was the development of training materials on classroom management and control for student teachers. Topics included mixed ability teaching, exceptional children (both slow and bright pupils), languages across the curriculum, and teaching skills such as questioning and explaining.

Kerry reported that the materials on teaching bright students have proven to be highly successful for self-training and pertinent for inservice programs. The training package was divided into five units, two of which dealt with identification and three with instructional strategies for the classroom. One unit urged the teachers to record their lessons, analyze their questioning techniques, and in general work on improving their self-evaluations. The teachers were required to use their classrooms to carry out the mandates of this training program. Although this particular program differs from the others in that it is self-instructional, it is designed to meet teachers' self-identified needs. Further, it is a developmental model based on extensive research.

The U.S.C.-Lexington program was successful in achieving goals similar to those of the three programs. In addition, the U.S.C. program attained the following unique goals:

1. It is fully integrated with a school district's educational program and is part of the district's comprehensive plan to combine the education of gifted students and the professional development of teachers.
2. It uses a collaborative model in which the

university and the district share costs and management.

3. It is a dynamic model that is designed to prepare professionals to work with gifted students in the regular classroom and to work as a coordinators.

The following secondary objectives also were accomplished:

1. Public Service. Thirty-seven gifted adolescents enrolled in a program of high educational quality.
2. Curriculum Leadership. The curriculum for the program has helped to establish new directions for the academic education of the gifted and talented in metropolitan Columbia. In addition, the observation and analysis of the students' classroom performances have helped to identify individual student weaknesses as well as district program weaknesses.
3. Cooperative Relationships with School Districts. The program engaged the university directly in the education of middle school students within a cooperative arrangement with the local school district.

An informal assessment of the program shows that it achieved both its primary and secondary goals. All of the trainees enrolled in the program remained until its completion, and in all instances, the trainees accomplished the individual goals they had established.

Measuring success is always a difficult task. In this case, success means that both the district and the university have opened new avenues for their students and teachers. The school district has an ongoing program for its teachers and gifted students, and the university has moved away from the proverbial ivory tower into a collaborative field setting where ideas, techniques, and strategies are formulated, tested, and assessed cooperatively.

Summary: Change Not for the Sake of Change

Numerous questions and answers come to mind about teacher education programs and the training they provide for working with gifted students, but "change for the sake of change" is not the answer and never will be, according to William Van Til (1978, p. 360). However, Van Til believes that change is a key to understanding and that to refuse to reassess in an ever-changing world is eventually to cause intellectual suicide for that individual and/or that society.

The University of South Carolina and Lexington County (S.C.) School District Five believe that both teacher preparation programs and the educational programs in the schools should be germane to the people they are attempting to educate. The basic question is not whether a topic or subject should be taught, but what aspects are pertinent to individual levels of learning and competence.

This paper describes a collaborative program between the university and district five to provide adolescents with a five-week, academic, summer session that combines the features of acceleration, enrichment, and pull-out; and accompanying the program are graduate-level courses and practica for prospective teachers of gifted children and coordinators of programs for the gifted.

For the district, the two-year-old program is incorporated into its master plan for educating gifted students and for providing professional development experiences for their teachers. For the students, the program offers opportunities they do not have during the regular school year. For the College of Education, the program provides a laboratory-like setting for field practica and enhances the college's ability to train and study teachers who work or will work with gifted children. For the university, the program reestablishes a collaborative partnership with the schools.

Two aspects of the program remain unresolved and await further research in the field: methods of identifying gifted students and methods of identifying teachers for these students. For example, I.Q. measures have shown a strong correlation with giftedness. Many

educators rely on a single test score to identify gifted children, but others argue that performance also has a place in the selection criteria. The lack of agreement poses problems for identifying the children to participate in programs such as the U.S.C.-Lexington program. Similarly, educators are quick to point out the value of the teacher in the educational process, but they are reluctant to identify any special characteristics of teachers for the gifted. The question of a teacher's intellectual giftedness has not been answered in the literature. Again, the absence of standards poses problems for colleges of education that want to recruit and select qualified applicants for programs that will teach them to work with gifted children.

Despite these problems, the U.S.C.-Lexington program is being readied for the 1982 summer session, the results of which, undoubtedly, will help the program continue to evolve to meet the need of its participants. The U.S.C.-Lexington program represents change for the better. For more information, contact Dr. John D. Mulhern, dean, College of Education, University of South Carolina, Columbia, SC 29208.

## APPENDIX: DIMENSION FOUR LESSON PLANS

### Creative Writing

The purpose of the creative writing course is to develop student skills in flexible thinking and creative writing as well as to encourage an understanding of the creative process and appreciation of student and professional writing.

Lesson 1: Writing with a Pattern or a Shape

Objective: That the student understands the many possible forms of concrete and acrostic poems, and that poems do not necessarily have rhyme

Techniques and Materials: Group and individual exercises in creative acrostic and concrete poems

Lessons 2 and 3: Writing According to a Pattern

Objective: That the student exhibits the ability to write according to a specific poetic pattern

Techniques and Materials: Group and individual practice in writing specific forms of poetry, especially the diamante, cinquain, lanterne, haiku, tanka, triplet, and quatrain

Lesson 4: Writing from Observation

Objective: That the student elaborates on the ideas and uses of details associated with a famous painting

Techniques and Materials: Brainstorming about ideas as well as details and writing descriptive paragraphs about the subject of the painting

Lesson 5: Writing with Flexibility

Objective: That the student exhibits the ability to expand ideas and be flexible in thinking

Techniques and Materials: Explanation and practice of the techniques of expansion, slotting, embedding, and combining sentences

Lesson 6: Illustrating Creative Writing

Objective: That the student develop skills in illustrating his or her writing

Techniques and Materials: Individual experimenting with techniques blowing food coloring through straws, creating borders, writing in calligraphy, and making thumbprints

Lesson 7: Learning Editing Skills

Objective: That the student refines skills in editing his or her writing

Techniques and Materials: Review of the steps of editing by promoting ideas through careful spelling, punctuation, word choice, and sentence structure

Lesson 8: Making Individual Books

Objective: That the student understands the process of making by hand an individual book containing original student writing

Techniques and Materials: Overview and illustration of the steps in making a book, including cutting the pages, binding them, making a cover, and assembling an individual book

Lesson 9: Producing a Class Booklet

Objective: That the student puts together a class booklet of students' works

Techniques and Materials: Edit, type, and compile into a booklet one poem written during the sessions by each student in the writing class and a summary of work done by each student in the other three classes in the summer seminar

Lesson 10: Sharing Student Writing

Objective: That the students share their writing during a young author's day

Techniques and Materials: Total group sharing of writing and experiences during the summer seminar

## Computer Science

The computer science course is designed to introduce students to the basic components of any computer, computer terminology, and the art of BASIC programming. Programming is taught as a means of solving problems (i.e., a problem is posed and then a program is written to solve it.)

Lesson 1: Introduction to Computers

Objective: That the student is oriented to the computers used in this course, their internal make-up, their role as a tool, and the procedures for use of the computers

Techniques and Materials: 12 TRS-80 microcomputers; posters of internal computer parts, group discussion, pre-written programs to exhibit computer characteristics (speed, accuracy, information recall). Discuss course goals

Lesson 2: Components of the Computer

Objective: That the student learns the five basic components of any computer (input, central processing unit, memory, arithmetic/logic unit, output) and the way they interact; students are oriented to the proper use of the TRS-80 computer and its diskette memory

Techniques and Materials: Lecture, demonstration, students play role of each computer component to better understand interaction; posters of steps involved in accessing and logging off the computer

Lesson 3: Introduction to Programming

Objective: That the student understands the concepts of an algorithm and programming

Techniques and Materials: Lecture/demonstration; pose a problem and solve it using BASIC keywords LET, PRINT, IF/THEN, END; student will adapt program written in class to solve similar problem; student works on computer

Lesson 4: Flowcharting

Objective: That the student understands flowcharting as a problem-solving technique helpful in programming

Techniques and Materials: Lecture/demonstration; a problem is posed and solved by a flowchart from which a problem is written; key words INPUT, GOTO introduced; student adapts program written in class; student asked to think of a problem to solve using a program--this ongoing task will culminate in a final project

Lessons 5, 6, 7: Intermediate Programming

Objective: That the student develops the ability to write computer programs by posing problem, writing a flowchart, and writing a program from the flowchart

Techniques and Materials: Group discussion of how to solve problem with flowchart and program writing; students write at least one program in each lesson (Example: converting foreign currency to dollars, computing one's weight on other planets, converting Celsius to Fahrenheit); keywords FOR/NEXT, READ/DATA; students develop program for their chosen project

Lesson 8: Character String and Subroutine

Objective: That the student understands character variables and the concept of subprograms

Techniques and Materials: Demonstration of subprogram which asks user if he or she wishes to run program again; students write a program of their choice which incorporates this subroutine

Lesson 9: Computer Games

Objective: That the student understands the RND function and the elements of a computer game

Techniques and Materials: Example of dice game and card dealing given; students expand on programs given in class

Lesson 10: Computer Graphics

Objective: That the student understands SET, RESET functions as means of producing images

Techniques and Materials: Example given of how to produce an image on computer screen and how to use a subroutine to vary the location of this image; students embellish this concept; students demonstrate their projects

## Aerodynamics and Rocketry

The purpose of the aerodynamics and rocketry course is (1) to introduce students to the physics of flight, (2) to teach skills of following step-by-step directions, (3) to teach accuracy in model construction and pride in good workmanship, and (4) to use models to study flight principles.

Lesson 1: Humans and Flight

Objective: That the student study the history of flight

Techniques and Materials: Discussion of the human desire to fly as it developed historically; filmstrip with tape on the history of flight

Lesson 2: An Airfoil

Objective: That the student develops the concept of an airfoil--a surface for providing lift or controlling a flying object

Techniques and Materials: Construction of an airfoil with paper and cardboard; testing lift with fan and laboratory balance

Lesson 3: Air Flow around an Air Foil

Objective: That the student develops a diagram of air flow around various air foil shapes

Techniques and Materials: Experiment with smoke created from dry ice in water and observe air flow around various shapes; hypothesize and discuss

Lesson 4: Shape of an Air Foil and Lift

Objective: That the student observes by building air foils of different shapes and measuring the lift produced that shape does affect lift

Techniques and Materials: Measuring the lift by attaching air foils to a laboratory balance pan, using a fan as a wind source and measuring the lift produced

Lesson 5: Other Forces that Affect Flight

Objective: That the student conceives the forces of lift, drag, thrust, and gravity, and how these forces are related

Techniques and Materials: View film and discuss aircraft construction with aid of models and charts

Lesson 6: Model Plane Construction to Illustrate the Four Forces that Work on any Flying Object

Objective: That the student applies principles of airplane construction from film to model building

Techniques and Materials: Students will design and construct a cardboard, balsa wood, or stick plane to test in a wind tunnel using a fan as a wind source

Lesson 7: Effect of Streamlining on Flight

Objective: That the student changes the shape of his or her plane's body or the construction of control surfaces to see if more lift can be produced

Techniques and Materials: Redesign planes from previous activity or construct paper planes or stick planes of different shapes to see which flies best

Lesson 8: Major Law of Rocketry

Objective: That the student learns about and measures the results of Newton's Third Law

Techniques and Materials: Construction of matchstick rockets, firing them, and measuring their distance

Lesson 9: Parts of Solid- and Liquid-Fueled Rockets and Advantages and Disadvantages of Each

Objective: That the student diagrams and learns the main parts of each kind of rocket

Techniques and Materials: Filmstrip with tape, discussion, and diagramming

Lesson 10: Building a Rocket

Objective: That the student constructs a rocket from a packaged kit or from component parts bought at a hobby shop

Techniques and Materials: Catalogs, pictures, statistics on various models and engines, discussion of solid-fuel engines, amount of thrust, shaping of fins, recovery systems.

Lesson 11: Countdown

Objective: That the student understands the basic principles of electrical ignition systems; launches the model rocket and calculates the altitude of the flight

Techniques and Materials: Construct launch pads and simple transits for measuring altitude; fire rockets, hypothesize the reasons for the failures and successes of each flight; calculate distances

Independent Study

The purpose of this course is to develop students' skills in the selection of appropriate research topics and to expand their repertoire of skills to conduct research and to report their findings.

Lesson 1: Topic Identification

Objective: That the student identifies a manageable topic of personal interest that has not been researched previously

Techniques and Materials: Brainstorming, group discussion

Lesson 2: Preliminary Research

Objective: That the student determines the scope and sequence of the topic

Techniques and Materials: Independent library work, telephone and personal interviews, and other means to assess the appropriateness and manageability of the topic

Lessons 3 and 4: Initial Defense of the Topic

Objective: That the student develops skill in defending his or her choice of topic and drafting an outline of the research

Techniques and Materials: Individual student conference with two or three adults. Discussion should help student redefine the topic and/or refine the outline

Lesson 5: Library Research Skills

Objective: That the student refines skills in using the card catalog and reference index books, surveying the literature, cross-referencing topics, note taking, and developing a bibliography

Techniques and Materials: Group orientation to the library and its resources, and small group instruction on skills as needed by individual students

Lesson 6: Interview Techniques

Objective: That the student learns to use the interview as a research tool and develops skills in the conduct of one

Techniques and Materials: Organization of and an overview of oral skills needed in conducting an interview, simulation of an interview, student-to-student practice

Lesson 7: Construction of a Survey Questionnaire

Objective: That the student learns the use of the survey questionnaire as a research tool and develops skills in the construction of one

Techniques and Materials: Overview of the questionnaire as a means to collect data; review of different kinds; and class development of a questionnaire

Lesson 8: Oral Report of Preliminary Findings

Objective: That the student develops skill in presenting research findings in a short, oral presentation

Techniques and Materials: Review techniques for oral summation and use of cue and note cards; student makes two-minute oral presentations; questions and discussion on same

Lesson 9: Writing the Research Report

Objective: That the student develops skill in preparing a well-organized research report

Techniques and Materials: Review techniques of outline revision, reporting literature and data on topic, drawing conclusions; preparation of rough draft; and editing for final draft

Lesson 10: Presentation of Research Study

Objective: That the student develops skill in using different methods of presentation

Techniques and Materials: Review use of media and pictorial presentation as means to present information to audiences of varying size; student presentations of same

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